

RESPONSE UNDER 37 C.F.R. § 1.116
Application Serial No. 10/807,348
Attorney Docket No. Q80473

REMARKS

Claims 1-23 are pending in the application. Claims 17-22 were withdrawn from further consideration pursuant to the Response to Restriction Requirement filed July 29, 2005. Claims 1-16 and 23 stand rejected.

Claim Rejections - 35 U.S.C. § 103

In the Final Office Action, claims 1-16 and 23 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hashimoto (U.S. Patent No. 7,001,797) in view of Spooener (U.S. Patent Publication No. 2002/0096743). Applicant respectfully traverses and submits that the Examiner has failed to establish *prima facie* obviousness, as evidenced by the following.

Initially, Applicant submits that neither Hashimoto nor Spooener, whether taken alone or in combination, teach or suggest all the features of claims 1-16 and 23. For instance, claim 1 defines a method for manufacturing a solid-state imaging device comprising, *inter alia*, adhering a transfer member, to which the adhesive is applied, to the plurality of spacers formed on the transparent substrate, and applying pressure to the transparent substrate and the transfer member, which is adhered to the plurality of spacers formed on the transparent substrate. Claim 1 further recites the feature of releasing the transfer member from the transparent substrate to transfer the adhesive, which is applied to the transfer member, from the transfer member onto the plurality of spacers formed on the transparent substrate.

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In the grounds of rejection, the Examiner alleges that Hashimoto teaches applying an adhesive to a plurality of spacers (referencing spacer 44) formed on a transparent substrate (referencing plate 42), and applying pressure to the transparent substrate, which is adhered to the plurality of spacers formed on the transparent substrate. *See* Office Action at page 2. Further, the Examiner concedes that Hashimoto fails to suggest the features of “adhering a transfer member to which the adhesive is applied and releasing the transfer member from the transparent substrate to transfer the adhesive, which is applied to the transfer member, from the transfer member onto the plurality of spacers formed on the transparent substrate.” *See* Office Action at page 3.

However, the Examiner contends that these features are taught by Spooner and alleges that it would have been obvious to combine the teachings of Hashimoto and Spooner because “a transfer member, as taught by Spooner, can be included in the formation of the adhesive layer on the spacers.” *See* Office Action at page 5. Applicant respectfully disagrees and submits the Examiner has failed to establish *prima facie* obviousness with respect to all limitations as recited by claim 1.

For instance, Hashimoto relates to a method of manufacturing optical devices, such as an imaging devices having microlenses, in which the optical lenses are cut apart and diced. *See* Hashimoto at col. 1, lines 12-34. As taught by Hashimoto, a substrate 10 has a plurality of optical elements 60, which respectively include optical sections 14, and each optical section has a plurality of energy transducers 16. *See* Hashimoto at col. 4, lines 4-26 and Fig. 2. Further, Hashimoto teaches that a cover 30, which comprises plate 32 and spacer 34 formed integrally, is

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provided to seal the optical section 30, such that the spacer 34 is disposed to surround the optical section 14 and support the plate over the optical section 14. *See* Hashimoto at col. 4, lines 47-60 and Fig. 3.

In attaching the cover 30 to the substrate 10, Hashimoto teaches that an adhesive may be applied to “at least one of the cover 30 (spacer 34) and the substrate 10” in order to seal the optical section 14 prior to separation of the substrate to form individual optical elements 60 by a dicing blade. *See* Hashimoto at col. 5, lines 40-67. According to Hashimoto, since the optical sections 14 are sealed before the substrate 10 is separated, no debris enters the sealed chamber during the cutting process. *See* Hashimoto at col. 6, lines 9-12.

With respect to Spooner, Applicant notes that Spooner relates to a method for protecting a MEMS structure during dicing of a MEMS wafer to produce individual MEMS dies. *See* Spooner at paragraph 87. As taught by Spooner, a wafer cap 110 is mounted on a spacer layer 101, which is adhered to the MEMS wafer 13, or substrate, via adhesive layer 103. *See* Spooner at paragraphs 107-108 and Figs 20-21. The wafer cap 110, which may be a non-perforated cover tape, is bonded to the spacer layer 101 so as to enclose the MEMS structures 5. *See* Spooner at paragraphs 111-112. Further, Spooner teaches that the wafer cap 110 may include an adhesive medium, such as an ultraviolet light releasable medium, or an ultraviolet light and heat releasable medium.

As shown in Fig. 22, the capped MEMS wafer is diced from the backside so as produce plurality of capped MEMS dies. *See* Spooner at paragraph 114. Following the dicing, Spooner teaches that the wafer cap 110, spacer layer 101 and adhesive layer 103 are exposed to a

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radiation source 120, which breaks the bond between the spacer layer so that the wafer cap and spacer layer can be removed prior to packaging of the individual MEMS dies. *See* Spooner at paragraph 115.

However, neither Hashimoto nor Spooner, whether taken alone or in combination, would teach or suggest *at least* the features of adhering a transfer member to the plurality of spacers and the recited operation of releasing the transfer member from the transparent substrate to transfer the adhesive from the transfer member onto the plurality of spacers formed on the transparent substrate. In this regard, Applicant notes that, as conceded by the Examiner, Hashimoto fails to teach a transfer member. Rather, as discussed above, Hashimoto teaches that that an adhesive may be applied to “at least one of the cover 30 (spacer 34) and the substrate 10” in order to seal the optical section 14 prior to separation of the substrate. Thus, Hashimoto does not suggest any transfer member, but merely teaches that an adhesive may be applied.

Further, Spooner likewise fails to suggest a transfer member. Indeed, Spooner simply teaches that an adhesive medium may be provided to adhere the cap 110 to the spacer 101, and an adhesive layer 103 may be provided to adhere the spacer 101 to the substrate so as to cap the MEMS structures during dicing. After the dicing operation, Spooner teaches that the cap and spacers are removed.

Thus, in both Hashimoto and Spooner, adhesive material is simply provided on a covering member. However, neither Hashimoto nor Spooner teaches a transfer member or the operation of “releasing the transfer from the transparent substrate to transfer the adhesive”, as recited by claim 1. Moreover, in the grounds of rejection, nowhere does the Examiner identify

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any transfer member that is allegedly taught by Spooner. Rather, the Examiner simply recites claim limitations and points to paragraphs 107-108 and 112-115. However, as pointed out above, the portions of Spooner relied upon by the Examiner do not teach transfer of adhesive by releasing a *transfer member*, as claimed, but merely teach that adhesives can be applied to the respective elements.

Accordingly, Applicant submits that the combination of Spooner and Hashimoto fails to teach or suggest all the limitations of claim 1. Therefore, even assuming arguendo that one of ordinary skill would have been motivated to combine the teachings of Spooner and Hashimoto, the Examiner has failed to establish *prima facie* obviousness at least because the combination fails to teach or suggest all the claimed features. Reconsideration and withdrawal of the rejection of claim 1 is requested.

With respect to dependent claims 2-16 and 23, Applicant submits that these claims are allowable at least by virtue of their dependency and by virtue of the features recited therein.

With respect to claim 6, which recites that “the transfer member is peeled off such that the angle between the transfer member and the transparent substrate is kept constant”, Applicant further submits that the rejection of this claim is improper because neither Hashimoto nor Spooner teaches any peeling off of a *transfer member*. Again, the Examiner has failed to identify any portion of either Hashimoto or Spooner which would teach such a feature. Thus, *at least* for the reasons discussed above, both Hashimoto and Spooner simply teach that an adhesive is applied, and do not teach any peeling off of a transfer member, as claimed.

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With respect to the rejection of claim 23, which recites the further operation of bonding the wafer to the transparent substrate by pressing the wafer and the plurality of spacers formed on the transparent substrate, wherein the adhesive transferred from the transfer member onto the plurality of spacers bonds the plurality of spacers to the wafer, Applicant submits that the rejection of this claim is also improper. Inasmuch as neither Hashimoto nor Spooner teaches a transfer member or the operation of releasing the transfer member to transfer adhesive, the combination necessarily fails to suggest the further operation of bonding the wafer in the manner defined by claim 23.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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23373
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Date: June 27, 2006